

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOANNA H. ZHANG,  
JOSEPH R. FARYNIARZ, and  
MICHAEL C. CHENEY

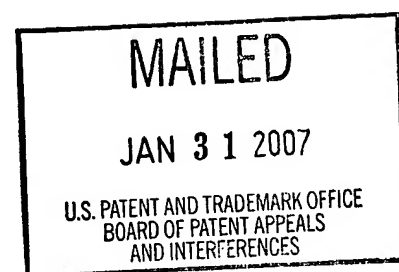
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Appeal No. 2007-0179  
Application No. 10/601,856

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ON BRIEF

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Before GREEN, LINCK, and LEOVITZ, Administrative Patent Judges.

LEOVITZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to a cosmetic composition comprising a salt of malonic acid. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 134. We affirm.

BACKGROUND

“Sunscreen agents operate to shield human bodies from sun irradiation. Unfortunately, sunscreen agent[s] upon occasion will discolor the cosmetic

formulations into which they are blended.” Specification, ¶ [0002]. “Organic acids have been disclosed as skin benefit agents in the cosmetic literature. For instance, malonic acid has been reported in U.S. Patent 5,641,495 (Jokura et al.) in combination with ceramides or pseudoceramides as moisturization actives. No mention is found in the relevant literature that carboxylic acids or their salts stabilize organic sunscreen agents.” *Id.*, ¶ [0003]. The instant application describes the finding “that malonate salts can inhibit discoloration of cosmetic compositions containing sunscreen agents.” *Id.*, ¶ [0005].

## DISCUSSION

Claims 1, 3, and 6, which are all the pending claims, are on appeal. Claims 1 and 3 are rejected over prior art. Within this grouping, the claims stand or fall together because Appellants have not argued the claims separately. Claim 6 is also rejected over prior art.

For the purpose of deciding this appeal, we select Claims 1 and 6 as representative:

1. A cosmetic composition comprising:

- (i) from about 0.0001 to about 30% by weight of a salt of malonic acid present as a half neutralized and a fully neutralized acid in a molar ratio ranging from about 1000:1 to about 1:1000, the salt having a cationic counter ion to malonate which is a cation of an amine selected from the group consisting of ammonia, dimethylethanolamine, tris(hydroxymethyl)amino methane and combinations thereof;
- (ii) from about 0.05 to about 40% by weight of an organic sunscreen agent having a chromophoric group active within the ultraviolet radiation range of 280 to 400 nm; and

(iii) from about 1 to about 99.9% by weight of a cosmetically acceptable carrier.

6. The composition according to claim 1 wherein the sunscreen agent is 4,4'-t-butylmethoxydibenzoylmethane.

### EVIDENCE RELIED ON

The Examiner relies upon the following references as evidence of unpatentability:

Jokura	5,641,495	Jun. 24, 1997
Takada (as translated)	JP 61215318	Sep. 25, 1986

### OBVIOUSNESS UNDER 35 U.S.C. § 103

#### *Rejection over Jokura*

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as obvious over Jokura.

Jokura teaches a skin cosmetic “having an excellent moisturizing effect,” without causing skin irritation. Jokura, col. 1, ll. 59-61. The cosmetic comprises: (A) a ceramide or pseudoceramide (col. 2, ll. 9-30); (B) a dicarboxylic acid (col. 2, ll. 31-35); and (C) a salt of the same dicarboxylic acid represented by (B) (col. 2, ll. 38-39; col. 3, ll. 37-40; col. 6, ll. 28-29). Malonic acid, which is recited in instant claim 1, is listed among 8 particular examples of dicarboxylic acids. Col. 3, ll. 31-36. Alkanolamine (“for example, triethanol amine”) and ammonium salts of dicarboxylic acids are also disclosed. Col. 3, ll. 41-45. The “salt of malonic acid” recited in instant claim 1 also includes amine and ammonium salts (“the salt having a cationic counter ion to malonate which is a cation of an amine selected from the group consisting of ammonia, dimethylethanolamine”).

A “milky lotion” with 2% by weight of a sunscreen is also described by Jokura. Col. 7 (Ex. 3), ll. 40-53. The disclosed amount of sunscreen overlaps with the quantity recited in claim 1, i.e., “from about 0.05 to about 40% by weight of an organic sunscreen agent.”

According to Jokura, “[t]o achieve a sufficient moisturizing effect while avoiding excessive irritation, it is preferable that the total content of these components (B) and (C), in terms of the acid, in the skin cosmetic of the present invention falls within a range of from 0.01 to 20% by weight.” Col. 3, ll. 51-55. For this same purpose, the molar ratio of the acid (B) to the salt (C) is described by Jokura as falling preferably “within a range of from 1/9 to 9/1, still preferably from 2/8 to 8/2.” Col. 3, ll. 55-60. The pH of the skin cosmetic is preferably from “pH 3 to 10, still preferably to pH 3 to 9.” Col. 3, ll. 61-63.

The Examiner states that Jokura “do[es] not exemplify the instant malonic acid salt among the various dicarboxylic acid salts disclosed or the instant amine salts. Further, Jokura does not specify the acid to salt molar ratio.” Answer 4. However, the Examiner asserts that it would have been obvious to the skilled worker to have selected the claimed malonic acid and amine or ammonium salt since Jokura teaches these as suitable components (col. 3, ll. 31-36 and 41-45) of its skin cosmetic. *Id.* at 5. “Therefore, the selection of the instant acid salt is considered prima facie obvious since the prior art teaches that the criticality of selecting the acid is that it is a dicarboxylic acid and not the selection of the specific dicarboxylic acid itself.” *Id.* at 5.

Regarding the neutralization ratio, although Jokura does not specify the molar ratio of acid: salt, it would have been obvious to a skilled artisan to manipulate this ratio. One would have been motivated to manipulate the ratio of the salt to acid since partial or full neutralization of the acid by the salt (salt acts as the neutralizing

agent), adjusts the pH of the composition. Thus, one would have been motivated to utilize the desired acid: salt ratio depending on the desired pH of the composition. For instance, Jokura teaches the importance of avoiding skin irritation due to the acid; thus the pH must be above 3 and below 10 (see column 3, lines 30-65). Therefore, a skilled artisan would have been motivated to use a sufficient amount of salt to either partially or fully neutralize the acid in the composition to render a pH that does not irritant the skin wherein using equimolar amounts of the salt and acid (full neutralization) would increase the pH whereas partial neutralization of the acid would decrease the pH since the compound is in an acidic form. Additionally, it should be noted that generally differences in concentrations do not support the patentability of subject matter that is encompassed by the prior art unless there is evidence indicating such a [ ] concentration is critical. See *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

*Id.* at 5: 6-20.

Appellants argue that Jokura “is focused upon achieving moisturization. There is no suggestion that the dicarboxylic acids implicated in achieving this moisturization would have any effectiveness at stabilizing sunscreen agents” as described in the instant application. Br. 5. They also assert that that half-neutralized and fully neutralized dicarboxylic acids are not described by Jokura. “Since the free acid must be present, the fully neutralized salt of that free acid could not coexist therewith. . . . Jokura et al. lacks the claimed di-salt.” Br. 7. Appellants urge there would have been no motivation to have selected malonic salts from Jokura’s disclosure. Br. 6, 8.

The Examiner bears the initial burden of showing unpatentability. See, e.g., *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Obviousness requires assessing “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a). To establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). “The prima facie case is a procedural tool of patent examination, allocating the burdens of going forward as between examiner and applicant. . . . If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant.” *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Here, we find that the Examiner has presented sufficient evidence to establish a prima facie case of obviousness. First, the Examiner has identified where the components of the claimed composition can be found in the prior art. Answer 3-4. Secondly, having described the differences between the claimed composition and the prior art (Answer 4), the Examiner explains why the skilled worker would have been motivated to have modified Jakura to have arrived at the claimed subject matter. Answer 4-5.

Before summarizing the Examiner’s position, for clarity, we designate the free dicarboxylic acid (*i.e.*, malonic acid) as species [1]; the half- or partly-neutralized acid (*i.e.*, malonic acid substituted with one “cationic counter ion”) as species [2]; and the fully-neutralized acid (*i.e.*, malonic acid substituted with two “cationic counter ions”; the “di-salt”) as species [3]. Jokura describes a skin composition having a molar ratio between the free acid [1] and fully neutralized acid [3]. Col. 3, ll. 51-60. In contrast, the claimed composition is limited to a different molar ratio which is between the half-neutralized [2] and fully neutralized

acid [3]. The Examiner's argument is that a composition prepared from a mixture of malonic acid and its salt, as suggested by Jokura, would inherently have a [1]:[3] ratio which, when adjusted to the pH range described by Jokura as non-irritating to the skin, would overlap with the [1]:[3] ratio described for Jokura's skin composition. The reason for this presumption is that pH determines the ratio of the species [1], [2], and [3]. Compositions having the same or similar pH would correspondingly have the same or similar concentrations of species [1], [2], and [3]. The Examiner provides a well-reasoned explanation for this conclusion, including equations which show how acid concentration (i.e., pH) would govern the ratio of species [1], [2], and [3] in a solution of malonic acid and its salt.

Answer 10-13. Especially in view of the broad range molar ratio recited in claim 1 ("from about 1000:1 to about 1:1000"), we find this evidence sufficient to establish a *prima facie* case of obviousness.

Once *prima facie* obviousness had been shown, the burden properly shifted to Appellants to come forward with evidence to rebut it. On the record before us, we do not find that Appellants have provided persuasive countervailing arguments. Appellants state that "[a]ll three species, i.e., free [1], mono-salt (half-neutralized) [2] and di-salt (fully neutralized) [3], could not exist together." Br. 7. However, the Examiner carefully shows, relying on LeChatelier's principle, that all three species could co-exist, and then derives equations to illustrate how the relative amounts of the species are changed by adjusting the solution's pH. Answer 11. Appellants do not identify any defect in the Examiner's reasoning nor do they explain why "[t]he pKa of malonic acid would not permit the presence of all three species," as they allege would be the case. Br. 7.

In addressing Jokura, Appellants also appear to have misunderstood its disclosure. *See, e.g.*, Br. 7. ("The problem with the pH argument is that Jokura et

al. *require* the presence of *free* dicarboxylic acid.”). Jokura’s requirement that its skin composition comprises components (B) a dicarboxylic acid and (C) a salt of the same dicarboxylic acid in a fixed molar ratio refers to how much of the components are initially combined to prepare the skin cosmetic, not which species are present in the composition at equilibrium.

Appellants also argue that Jokura “is focused upon achieving moisturization. There is no suggestion that the dicarboxylic acids implicated in achieving this moisturization would have any effectiveness at stabilizing sunscreen agents,” which is accomplished by the claimed subject matter. Br. 5. We do not find this argument persuasive. As explained above, the claimed subject matter comprising “a salt of malonic acid present as a half-neutralized and a fully neutralized acid in a molar ratio ranging from about 1000:1 to about 1:1000” would have been obvious to one of ordinary skill in the art at the time the invention was made. “Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention.” *In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991). *See also* Answer 9-10 for additional arguments which we find fully persuasive.

Finally, Appellants urge that “the Examiner has extrapolated motivation to use a mixed di- and mono- amine type malonate from a reference which does not specifically mention this combination of salt, much less provide any specific example.” Br. 8. We are not persuaded by this argument. As the Examiner concludes, Jokura’s teaching of malonic acid in a list of 8 dicarboxylic acids coupled with its disclosure amine and ammonium salts, would have rendered the choice obvious to the skilled artisan. Answer 6. Appellants do not describe the deficiency in this argument. Moreover, they admit in their patent application that malonic acid “has been reported” in Jokura. Specification, § [0003].

For the foregoing reasons and the reasons set forth in the Answer, we affirm the rejection of claim 1. Because claim 3 was not separately argued, it falls with claim 1.

*Rejection over Jokura in view of Takada*

Claim 6 stands rejected under 35 U.S.C. § 103(a) as obvious over Jokura in view of Takada.

Jokura was discussed above. “[E]xample 3 teaches a sunscreen lotion comprising an organic acid, 0.5% of an organic acid salt, and 2% 4-tert-butyl-4-methoxybenzoyl-methane, among other components.” Answer 6. Takada teaches 4-[1,1-dimethylethyl]-4'-methoxydibenzoylmethane as a sunscreen to protect skin against ultraviolet radiation. Takada at 1. The latter “is also known as 4,4-tert-butylmethoxydibenzoylmethane as recited in dependent claim 6.” Answer 6. The methoxydibenzoylmethane compound is formulated with organic acids to prevent its discoloration and reduction in UV absorbance over time. Takada at 2. Malonic acid is listed among 13 specifically named organic acids as useful to protect the methoxydibenzoylmethane compound. *Id.*

The Examiner argues:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to look to combine the teaching of Jokura et al and [Takada] and utilize the instant sunscreen agent (4,4-tert-butyl-methoxydibenzoylmethane). One would have been motivated to do so since [Takada] teaches methoxydibenzoylmethane is an effective sunscreen agent. Thus, a skilled artisan would have been motivated to substitute Jokura's methoxybenzoylmethane's derivative with the instantly claimed methoxydibenzoylmethane since [Takada] teaches the instantly claimed sunscreens [as] an effective UV absorber. Further, a skilled artisan would have expected similar results

and success since both Jokura and [Takada] teach the use of organic acid salts in the compositions.


Answer 7.

Appellants argue that the Takada fails to disclose amino salts of malonic acid which are combinations of di- and mono-salts. Br. 9. We do not find Appellants' argument persuasive since they do not address the Examiner's prima facie case of obviousness which relies on Takada for its teaching of the sunscreen agent recited in claim 6, not for its teaching of malonic salts. This rejection is affirmed for the foregoing reasons and the reasons as articulated in the Answer.

#### TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

  
Lora M. Green )  
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)  
  
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